## **Author Index**

Abel, P.: see Rebrin, K, 33

Adams, M.A.: see McNally, D.S., 495 Aeyels, B., Peeraer, L., Vander Slotten, J. and Van der Perre, G; Development of an aboveknee prosthesis equipped with a microcomputer-controlled knee joint: first test results, 199

Aharoni, S.: see Einav, S., 390

Albrektsson, T.: see Wennerberg, A., 412

Allen, J., Fisher, A.C., Gaylor, J.D.S. and Razieh, A.R., Development of a digital adaptive control system for PO<sub>2</sub> regulation in a membraneoxygenator, 404

Ambrosi, D.: see Ferrari, G., 91

Amoore, J.N., Santamore, W.P., Corin, W.J. and George, D.T., A computer simulation of the effects of ventricular interdependence on indices of left ventricular systolic function, 257

Anderson, J.Mc.: see Mitchell, R.H., 52 Angue, J.C.: see Laassel, E.M., 313 Arit, A.C.: see Zangemeister, W.H., 451

August, S.: see Weiss, P., 117

Bai, X., Pegg, D.E., Evans, S. and Penfold, J.D.J., Analysis of electromagnetic heatingpatterns inside a cryopreserved organ, 459 Bailey, A.H.: see Mitchell, R.H., 52

Bajd, T.: see Munih, M., 293

Bartlett, M.L.R., Murray, A. and Dunlop, W., Is fetal heart rate monitoring sufficiently sensitive to detect changes during labour?, 431 Beatty, P.C.W., Measurement of breath-by-breath

gas exchange during general anaesthesia using a single pneumotachograph, 147

Bell, F.: see Rafferty, D., 442 Bellhouse, B.J.: see Lee, V.S., 27 Bloor, M.I.G.: see Smye, S.W., 142 Bogduk, N.: see Johnson, G.R., 490 Boom, H.B.K.: see Mulder, A.J., 3

Bourauel, C., Drescher, D. and Thier, M., An experimental apparatus for the simulation of three-dimensional movements in orthodontics,

Bowker, P., Messenger, N., Ogilvie, C. and Rowley, D.I., The energetics of paraplegic

walking, 344 Brackenridge, L.: see Rafferty, D., 442

Brown, J.S., Gee, H., Olah, K.S., Docker, M.F. and Taylor, E.W., A new technique for the identification of respiratory sinus arrhythmia in utero, 263

Brundin, J.: see Molin, A., 527 Brunstein, E.: see Rebrin, K., 33 Bryant, J.T.: see Small, C.F., 133 Buxton, T.: see Johnson, G.R., 490 Byford, G.H.: see Pizzuti, G.P., 356 Byrne, P.O.: see Clark, D., 168 Calamai, R.: see Coppini, G., 321

Cassells-Smith, A.: see Clark, D., 168

Cerutti, S.: see Liberati, D., 57 Charayaphan, C. and Marble, A.E., Image process ing system for interpreting motion in American

Sign Language, 419 Charayaphan, C., Marble, A.E., Nugent, S.T. and Swingler, D., Correlation algorithm and sampling techniques for estimating the signal-tonoise ratio of the electrocardiogram, 516

Cifaldi, S.: see Pizzuti, G.P., 356

Claridge, E. and Hall, P.N., Shape analysis for classification of malignant melanoma, 229

Clark, D., Byrne, P.O. and Cassells-Smith, A., Measurement technique for the determination of blood oxygen saturation, 168

Clift, S.E., Finite-element analysis in cartilage biomechanics, 217

Coppini, G., Demi, M., Calamai, R. and Valli, G., Artificial vision approach to the understanding of heart motion, 321

Corin, W.J.: see Amoore, J.N., 257

Costa, A., Costantino, M.L. and Fumero, R., Oxygen exchange mechanisms in the human

placenta: mathematical modelling and simulation

Costantino, M.L.: see Costa, A., 385

Crowe, J.A., Gibson, N.M., Woolfson, M.S. and Somekh, M.G., Wavelet transform as a potential tool for ECG analysis and compression, 268 Cudd, P.A.: see Hawley, M.S., 193

Davies, K.E.: see Jones, P.R., 379 Davies, K.E.: see Jones, P.R., 9 Davis, B.L.: see Spirakis, A., 126 Dawson, J.R.: see Yettram, A.L., 21 DeVries, D.: see Guillaume, D.W., 153 Demi, M.: see Coppini, G., 321

Deutsch, T.: see Lehmann, E.D., 235

Deutsch, T.: see Lehmann, E.D., 243 Dickstein, R., Smolinski, Z. and Pillar, T., Selfpropelled weight-relieving walker for gait rehabil-

itation, 351 Docker, M.F.: see Brown, J.S., 263 Doyle, D.J.: see Hamann, G.E., 73 Doyle, M.: see Faris, F., 303 Drescher, D.: see Bourauel, C., 371

Drijber, F.L.P. and Finlay, J.B., Universal joint slippage as a cause of Hoffmann half-frame external fixator failure, 509

Dunlop, W.: see Bartlett, M.L.R., 431

Durdle, N.G.: see Slupsky, S.H., 69 Einav, S., Aharoni, S. and Manoach, M., Pulse transmission and impedence characteristics of a non-uniform circulatory model, 390

Elloy, M.A., Manning, M.P. and Johnson, R.A., Accuracy of intramedullary alignment in total knee replacement, 363

English, M.J.: see Huang, X.B., 64 Etheridge, R.A.: see Kormi, K., 203 Evans, S.: see Rachman, M.J., 397 Evans, S.: see Bai, X., 459

Evans, S.: See Dal, A., 1959 Faris, F., Rolfe, P., Thorniley, M., Wick-ramasinghe, Y., Houston, R., Doyle, M. and O'Brien, S., Non-invasive optical monitoring of cerebral blood oxygenation in the foetus and newborn: preliminary investigation, 303 Farley, R.D. and Franklin, D.H., Development of

a humidifier for patient ventilation using a semipermeable tube to minimise system condensate,

Fatemi-Langroudi, B.: see Lehmann, E.D., 250 Ferrari, G., de Lazzari, C., Mimmo, R., Tosti, G. and Ambrosi, D., A modular numerical model of the cardiovascular system for studying and train ing in the field of cardiovascular physiopathology,

Finlay, J.B.: see Liggins, A.B., 440 Finlay, J.B.: see Drijber, F.L.P., 509 Fischer, U.: see Rebrin, K., 33 Fisher, A.C.: see Allen, J., 404 Franklin, D.H.: see Farley, R.D., 426 Fumero, R.: see Mantero, S., 109 Fumero, R.: see Costa, A., 385 Gaylor, J.D.S.: see Allen, J., 404

Gazzani, F., Performance of 7-parameter DLT method for the calibration of stereophotogrammetric systems using 1-D transducers, 476

George, D.T.: see Amoore, J.N., 257 Gibson, D.G.: see Yettram, A.L., 21 Gibson, N.M.: see Crowe, J.A., 268 Gilmore, W.S.: see Mitchell, R.H., 52 Goodship, A.E.: see McNally, D.S., 495

Gee, H.: see Brown, J.S., 263

Gosling, R.G.: see Lehmann, E.D., 250 Grewal, B.S.: see Yettram, A.L., 21

Gryzagoridis, J.: see Spirakis, A., 126 Guillaume, D.W. and DeVries, D., Ambient

pressure air/oxygen blender, 153 Hafzy, M.S., Jackson, W.T., Saddemi, S.R. and Hsieh, Y-F, Effects of tibial rotations on patellar tracking and patello-femoral contact areas, 329 Hahn von Dorsche, H.: see Rebrin, K., 33

Hall, P.N.: see Claridge, E., 229

Hamann, G.E. and Doyle, D.J., PUMPSIN: A software package for simulating computer-controlled drug infusion pumps, 73

Hardie, R.: see Liggins, A.S., 440 Harding, K.: see Jones, P.R., 9 Hardinge, K.: see Jones, P.R., 379 Harness, J.B.: see Nasimi, S.G.A.A., 307 Hartley, R.W., Towards a new method of

isessing the antithrombotic properties of pharmacological compounds, 41 Hawley, M.S., Cudd, P.A., Wells, J.H., Wilson, A.J. and Judd, P.L., Wheelchair-mounted

integrated control systems for multiply handicapped people, 193 Hayes, W.C.: see Mizrahi, J., 467 Hill, D.L.: see Slupsky, S.H., 69 Hillman, M. and Jepson, J., Evaluation of a

robotic workstation for the disabled, 187 Hopkin, I.E.: see Hoskyns, E.W., 16 Hosein, R.: see Lord, M., 181

Hoskyns, E.W., Milner, A.D. and Hopkin, I.E., Measurement of tidal lung volumes in neonates during high-frequency oscillation, 16 Hoskyns, W.E.: see Milner, A.D., 16

Houin, G.: see Plusquellec, Y., 521 House, D.: see Johnson, G.R., 490 Houston, R.: see Faris, F., 303 Hsieh, Y-F.: see Hafzy, M.S., 329 Huang, X.B., English, M.J. and Vincent, R., Fast

ECG data compression algorithms suitable for microprocessor systems, 64

Hukins, D.W.L.: see Jones, P.R., 379 Hukins, D.W.L.: see Jones, P.R., 9 Jackson, W.T.: see Hafzy, M.S., 329

Jackson, W. 1., 82 Halley, M. 13, 025 Jepson, J.: see Hillman, M., 187 Johnson, G.R., Buxton, T., House, D. and Bogduk, N., Use of uncalibrated biplanar radio-graphy for the measurement of skeletal co-ordinates around the shoulder girdle, 490

Johnson, R.A.: see Elloy, M.A., 363 Jones, P.R., Hukins, D.W.L., Porter, M.L., Davies, K.E., Timperley, A.J., Hardinge, K. and Taylor, C.J., Aseptic loosening of the femoral component in cemented total hip replacement, 379

Jones, P.R., Hukins, D.W.L., Porter, M.L. Davies, K.E., Harding, K. and Taylor, C.J., Bending and fracture of the femoral com ponent in the cemented total hip replacement,

Judd, P.L.: see Hawley, M.S., 193 Kanamori, Y.: see Kawauchi, M., 163 Kawauchi, M., Kanamori, Y., Sachdeva, R., Nakajima, H. and Mitani, H., The Dynamic Dento-palatography System: a new approach for evaluating speech, 163 Keyak, J.H. and Skinner, H.B., Three

dimnensional finite element modelling of bone: effects of element size, 483

Knierbein, B., Rosarius, N., Unger, A., Reul, H. and Rau, G., CAD-design, stress analysis and in vitro evaluation of three-leaflet bloodpump valves, 275 Knight, T.: see Nasimi, S.G.A.A., 307

Kormi, K. and Etheridge, R.A., Application of the finite element method to simulation of damage to the human skull as a consequence of missile impact on a multi-layered composite crash helmet, 203

Kralj, A.: see Munih, M., 293 Krol, J.J.: see Wennerberg, A., 412 Laassel, E.M., Loslever, P. and Angue, J.C., Patterns of relations between lower limb angle excursions during normal gait, 313 Learmonth, I.D.: see Spirakis, A., 126

Lee, V.S., Tarassenko, L. and Bellhouse, B.J., Quantitative optical determination of the viability of platelet concentrates, 27 Lehman, S.: see Zangemeister, W.H., 451

Lehmann, E.D. and Deutsch, T., A physiological model of glucose-insulin interaction in type 1 diabetes mellitus, 235 Lehmann, E.D. and Deutsch, T., Insulin dosage adjustment in diabetes, 243 Lehmann, E.D., Gosling, R.G., Fatemi-Langroudi, B. and Taylor, M.G., Noninvasive Doppler ultrasound technique for the in vivo assessment of aortic compliance, Leuthold, R., Spahn, D.R., Niederer, P.F. and Schmid, E.R., Gas transport during high frequency ventilation; the significance of direct wash-out, 77 Liberati, D., Narici, L., Santoni, A. and Cerutti, S., The dynamic behaviour of the evoked magnetoencephalogram detected through parametric identification, 57 Liggins, A.B., Shemerluk, R., Hardie, R. and Finlay, J.B., Technique for the application of physiological loading to soft tissue in vitra, 440 Lord, M., Hosein, R. and Williams, R.B., Method for in-shoe shear stress management, 181 Loslever, P.: see Laassel, E.M., 313 Manning, M.P.: see Elloy, M.A., 363 Manoach, M.: see Einav, S., 390 Mantero, S., Pietrabissa, R. and Fumero, R., The coronary bed and its role within the cardiovascular system: a review and an introductory single-branch model, 109 Marble, A.E.: see Charayaphan, C., 419 Marble, A.E.: see Charayaphan, C., 516 Marjanovic, D.Z.: see Nasimi, S.G.A.A., 307 McNally, D.S., Adams, M.A. and Goodship, A.E., Development and validation of a new transducer for intradiscal pressure measurement, 495 McNamara, B.P., Prendergast, P.J. and Taylor, D., Prediction of bone adaptation in the anatomical finite element model, 209 Mearns, A.J.: see Nasimi, S.G.A.A., 307 Messenger, N.: see Bowker, P., 344 Metaxaki-Kossionides, C.: see Parthenis, K., Milner, A.D. and Hoskyns, W.E. Measurements of volumes in high frequency oscillation in neonates, 16

ulnar-osteotomized sheep's forelimb using an Milner, A.D.: see Hoskyns, E.W., 16 Mimmo, R.: see Ferrari, G., 91 Mitani, H.: see Kawauchi, M., 163 Mitchell, R.H., Bailey, A.H., Anderson, J.McC. and Gilmore, W.S., Electrical stimulation of cultured myocardial cells, 52 Mizrahi, J., Silva, M.J. and Hayes, W.C., Finite element stress analysis of simulated metastatic lesions in the lumbar vertebral body, 467 Molin, A. and Brundin, J., Forces required for dilatation of human cervix in first trimester of pregnancy, 527

Mote Jr., C.D.: see Sun, S.C., 435

Mulder, A.J., Veltink, P.H., Boom, H.B.K.
and Zilvold, G., Low-level finite state control of knee joint in paraplegic standing, 3 Munih, M., Kralj, A. and Bajd, T., Bending moments in lower extremity bones for two standing postures, 293 Murray, A.: see Bartlett, M.L.R., 431

the local vasomotor reflexes, 307 Niederer, P.F.: see Leuthold, R., 77 Nolfe, G.: see Pizzuti, G.P., 356 Nugent, S.T.: see Charayaphan, C., 516 O'Brien, S.: see Faris, F., 303 Ogilvie, C.: see Bowker, P., 344 Olah, K.S.: see Brown, J.S., 263 Olkkonen, H., Running discrete cosine transform, 507 Orpwood, R.D., Computer simulation of neurone pattern processing, 222 Parkin, A.: see Smye, S.W., 142 Parthenis, K. and Metaxaki-Kossionides, C. Blood analysis using black and white digital images, 287 Peeraer, L.: see Aeyels, B., 199 Pegg, D.E.: see Rachman, M.J., 397 Pegg, D.E.: see Bai, X., 459 Penfold, J.D.J.: see Bai, X., 459 Peng, C: see Zhang, K., 159 Peterson, A.E.: see Slupsky, S.H., 69 Pichora, D.R.: see Small, C.F., 133 Pietrabissa, R.: see Mantero, S., 109 Pillar, T.: see Dickstein, R., 351 Pizzuti, G.P., Byford, G.H., Nolfe, G., Cifaldi, S. and Salvatori, G., Finger tremor and the central nervous system, 356 Plusquellec, Y and Houin, G., Drug recirculation model with multiple cycles occuring at unequal time intervals, 521 Popovic, D.B., Stein, R.B. and Tomovic, R., Multidisciplinary approach to motor control: a workshop report from Yugoslavia, 83 Porter, M.L.: see Jones, P.R., 379 Porter, M.L.: see Jones, P.R., 9 Prendergast, P.J. and Taylor, D., Design of intramedullary prostheses to prevent bone loss: Predictions based on damage-stimulated remodelling, 499 Prendergast, P.J.: see McNamara, B.P., 209 Qian, K., Computation of pump flow from driving parameters, 156 Qian, Xun-xi, Measurement of blood flow from an assist ventricle by computation of pneumatic driving parameters, 156 Rachman, M.J., Evans, S. and Pegg, D.E., Experimental results on the rewarming of a cryopreserved organ phantom in a UHF field, Rafferty, D., Brackenridge, L. and Bell, F., Monitoring movement: an electronic event counter, 442 Raso, J.: see Slupsky, S.H., 69 Rau, G.: see Knierbein, B., 275 Razieh, A.R.: sse Allen, J., 404 Rebrin, K., Fischer, U., Hahn von Dorsche, H., von Woedtke, T., Abel, P. and Brunstein, E., Subcutaneous glucose monitoring by means of electrochemical sensors: fiction or reality?, 33 Reul, H.: see Knierbein, B., 275 Rolfe, P.: see Faris, F., 303 Rosarius, N.: see Knierbein, B., 275 Rowley, D.I.: see Bowker, P., 344 Sachdeva, R.: see Kawauchi, M., 163 Saddemi, S.R.: see Hafzy, M.S., 329 Salvatori, G.: see Pizzuti, G.P., 356 Santamore, W.P.: see Amoore, J.N., 257 Santoni, A.: see Liberati, D., 57 Schmid, E.R.: see Leuthold, R., 77 Shemerluk, R.: see Liggins, A.B., 440

Silva, M.J.: see Mizrahi, J., 467

Skinner, H.B.: see Keyak, J.H., 483

Singh, V.R. and Yadav, S., Alpha quartz as a

new source of piezoelectricity in bone, 81 Skinner, H.B.: see Sun, S.C., 435

Slupsky, S.H. Durdle, N.G., Raso, J., Hill, D.L. and Peterson, A.E., Video digitizer for analysis of trunk deformity in scoliosis, 69 Small, C.F., Bryant, J.T. and Pichora, D.R., Rationalization of kinematic descriptors for three-dimensional hand and finger motion, 133 Smolinski, Z.: see Dickstein, R., 351 Smye, S.W., Parkin, A. and Bloro, M.I.G., An analysis of a radionuclide technique used to measure reactive hyperaemia in limbs, 142 Somekh, M.G.: see Crowe, J.A., 268 Spahn, D.R.: see Leuthold, R., 77 Spirakis, A., Learmonth, I.D., Cryzagoridis, J. and Davis, B.I., Qualitative holographic study of hemi-pelvic deformation caused by loading different hip prostheses, 126 Stein, R.B.: see Popovic, D.B., 83 Sun, S.C., Mote Jr., C.D. and Skinner, H.B., Use of hot wire anemometry to measure velocity of the limb during human movement, 435 Swingler, D.: see Charayaphan, C., 516 Tarassenko, L.: see Lee, V.S., 27 Taylor, C.J.: see Jones, P.R., 379 Taylor, C.J.: see Jones, P.R., 9 Taylor, D.: see McNamara, B.P., 209 Taylor, D.: see Prendergast, P.J., 499 Taylor, E.W.: see Brown, J.S., 263 Taylor, M.G.: see Lehamann, E.D., 250 Thier, M.: see Bourauel, C., 371 Thorniley, M.: see Faris, F., 303 Timperley, A.J.: see Jones, P.R., 379 Tomovic, R.: see Popovic, D.B., 83 Tosti, G.: see Ferrari, G., 91 Ulrich, H.: see Wennerberg, A., 412 Unger, A.: see Knierbein, B., 275 Valli, G.: see Coppini, G., 321 Van der Perre, G.: see Aeyels, B., 199 Vander Sloten, J.: see Aeyels, B., 199 Veltink, P.H.: see Mulder, A.J., 3 Vincent, R.: see Huang, X.B., 64 Watmough, D.J., Breast compression to increase the sensitivity of lightscanning for the detection of carcinoma: potential hazard?, 173 Weiss, P. and August, S., Objective and subjective approaches to the force and displacement of characteristics of input devices used by the disabled, 117 Wells, J.H.: see Hawley, M.S., 193 Wennerberg, A., Albrektsson, T., Ulrich, H. and Krol, J.J., An optical three-dimensional technique for topographical descriptions surgical implants, 412 Wickramasinghe, Y.: see Faris, F., 303 Williams, R.B.: see Lord, M., 181 Wilson, A.J.: see Hawley, M.S., 193 Woolfson, M.S.: see Crowe, J.A., 268 Yadav, S.: see Singh, V.R., 81 Yettram, A.L., Grewal, B.S., Dawson, J.R. and Gibson, D.G., Factors influencing leftventricular stiffness, 21 Zangemeister, W.H., Arit, A.C. and Lehman, S., Sensitivity coefficients, trajectories and graphs of a human head movement model, Zhang, K., Zheng, E. and Peng, C., An EPROM-based heart-rate meter with wide range and multifunctions, 159 Zheng, E.: see Zhang, K., 159 Zilvold, G.: see Mulder, A.J., 3 de Lazzari, C.: see Ferrari, G., 91 von Woedtke, T.: see Rebrin, K., 33

Nakajima, H.: see Hawauchi, M., 163

Nasimi, S.G.A.A., Harness, J.B., Marjanovic, D.Z., Knight, T. and Mearns, A.J., Periodic

posture stimulation of the baroreceptors and

Narici, L.: see Liberati, D., 57

## Subject Index

3-D motion analysis close-range photogrammetry, stereophotogrammetry, 476

3-D measurement orthodontics, tooth movement, biomechanics,

abortion

cervical compliance, cervical dilation, first trimester, 527 above-knee

gait, prosthetics, control, 199

adapted access adapted switches, disabled, mechanical

characteristics, keyboard, 117 adapted switches

adapted access, disabled, mechanical characteristics, keyboard, 117

adaptive clustering American Sign Language, image processing, hand motion, 419

aids for the disabled clinical trials, microcomputer, robot, workstation, 187 air/oxygen blender

respiratory therapy, pneumatics, ventilator dependency, poppet-seat configuration, 153

total knee replacement, intramedullary, X-ray correlation factor, 363

ambulation weight relief, walking aids, 351

American Sign Language image processing, hand motion, adaptive clustering, 419

anaesthesia gas exchange, mass spectrometry, 147

reactive hyperaemia, radionuclides, 142

gait, motion analysis, velocity, kinetic energy, 435

aortic compliance dippler ultrasound, pulse wave velocity, reproducibility, 250

arterial system non-uniform circulatory model, ohmic resistance, 390 articular cartilage

finite-element method, biphasic analysis, osteoarthritis, 217

artificial joints bone, prostheses, holographic interferometry,

126 assist ventricle blood flow, pump flow rate, 156

assocation learning neurone simulation, neurone pattern association, membrane potential distribution,

automatic gait measurements normal gait, kinematic patterns, correspondence factor analysis, 313

autonomic nervous system skin capillary blood flow, local reflex response, baroreceptor outflow, entrainment,

bacterial contamination humidifier, condensate, 426 baroreceptor outflow

autonomic nervous system, skin capillary blood flow, local reflex response, entrainment,

bending moment musculo-skeletal system, biomechanical modelling, 293 biomechanical modelling

bending moment, musculo-skeletal system,

biomechanics orthodontics, tooth movement, 3-D

measurement, 371 half-frame, fixator, universal joint, slippage,

finite element method, bone, computed tomography, 483

biplanar radiography, shoulder, muscle, joints, biostability

subcutaneous glucose sensor, inflammation, dogs, 33 biphasic analysis

articular cartilage, finite-element method, osteoarthritis, 217 biplanar radiography

biomechanics, shoulder, muscle, joints, 490

assist ventricle, pump flow rate, 156 blood oxygen saturation

spectral scanning, in vitro testing, tissue hypoxia, co-oximeters, 168 blood-pump valve

CAD system, valve leaflet, dip moulding, 275

prostheses, artificial joints, holographic interferometry, 126 finite element method, computed

tomography, biomehcanics, 483 bone adaptation finite-element model, damage rate, modelling, 209 intramedullary prostheses, bone damage,

prosthesis collar, 499 bone damage intramedullary prostheses, bone adaptation,

prosthesis collar, 499 bone, vertebra, strength

metastatic lesions, cancer, finite element analysis, 467 CAD system

blood-pump valve, valve leaflet, dip moulding, 275 cancer

bone, vertebra, strength, metastatic lesions, finite element analysis, 467 cardiac function curves

cardiovascular modelling, pressure-volume relationship, venous return curves, pneumatic ventricle, 91

cardiac monitoring heart-rate, 159 cardiac muscle

monolayer, stimulation, cellular response, 52 cardiac regulation

coronary model, cardiovascular circulation,

cardiopulmonary bypass self-tuning control, oxygen regulation, membrane oxygenator, 404

cardiovascular circulation coronary model, cardiac regulation, 109

cardiovascular modelling pressure-volume relationship, venous return curves, cardiac function curves, pneumatic ventricle, 91

cellular response cardiac muscle, monolayer, stimulation, 52 cervical compliance

cervical dilation, abortion, first trimester, 527 cervical dilation

cervical compliance, abortion, first trimester, circulation

gas exchange, fetal placenta, oxygenation, 385

clinical trials aids for the disabled, microcomputer, robot, workstation, 187

close-range photogrammetry stereophotogrammetry, 3-D motion analysis, 476

CO-oximeters

spectral scanning, blood oxygen saturation, in vitro testing, tissue hypoxia, 168 compartmental model

pharmacokinetics, enterohepatic circulation,

computed tomography finite element method, bone biomechanics, 483

computer assisted diagnosis shape analysis, malignant melanoma, image analysis, 229

computer image analysis stem fracture, total hip replacement, 9 stem loosening, total hip replacement, 379 computer simulation

physiological model, type 1 diabetes mellitus, insulin dosage adjustment, 235

computer vision heart wall motion, time-varying imaging, illposedproblems, 321 condensate

humidifier, bacterial contamination, 426

gait, prosthetics, above-knee, 199 control system integrated systems, disability, electronic aids,

coronary model cardiovascular circulation, cardiac regulation,

correlation algorithm signal-to-noise ration, sampling techniques,

correspondence factor analysis normal gait, kinematic patterns, automatic gait measurements, 313

crash helmet damage assessment, finite-element analysis, head injuries, 203

cryobiology electromagnetic heating, kidney preservation, 397 electromagnetic heating, kidney preservation, 459

damage assessment finite-element analysis, crash helmet, head

injuries, 203 damage rate bone adaptation, finite-element model,

modelling, 209 data compression ECG, 64

diabetes mellitus knowledge-based system, insulin advisory therapy, dynamic simulation, 243

diabetic ulceration

plantar pressure, shear stresses, 181 digitizer

video, scoliosis, 69 dip moulding

cad system, blood-pump valve, valve leaflet, direct wash-out

high-frequency oscillation, gas transport, 77

control systems, integrated systems, electronic aids, 193 disabled

adapted access, adapted switches, mechanical characteristics, keyboard, 117 discrete cosine transform

Fourier transform, fast algorithm, 507

dynamic simulation, 243 subcutaneous glucose sensor, biostability, American Sign Language, image processing, adaptive clustering, 419 inflammation, 33 Doppler ultrasound head injuries fetal monitoring, fetal heart rate, 431 laser Doppler thrombus formation, pharamacology, in vivo damage assessment, finite-element analysis, crash helmet, 203 aortic compliance, pulse wave velocity, reproducibility, 250 head movement measurements, 41 fetal monitoring, respiratory sinus left ventricle, stiffness model optimization, model simulation, sensiarrhythmia, 263 Dynamic Dento-palatography multi-electrode array, speech, orthognathic tivity analysis, theory of optimality, 451 myocardium, volume elasticity, 21 heart wall motion liquid nitrogen surgery, 163 computer vision, time-varying imaging, illsoft tissue, mechanical testing, 440 posed problems, 321 local reflex response dynamic simulation heart-rate knowledge-based system, insulin advisory autonomic nervous system, skin capillary therapy, diabetes mellitus, 243 blood flow, baroreceptor outflow, cardiac monitoring, 159 high frequency oscillation entrainment, 307 ECG tidal volume, respiratory distress syndrome, LV systolic function data compression, 64 **ECG** analysis 16 indices, ventricular interdependence, model wavelet transform, signal analysis, 268 high frequency oscillation study, 257 gas transport, direct wash-out, 77 magnetoencephalography finger tremor, tremor, 356 synchronized spontaneous activity, holographic interferometry bone prostheses, artificial joints, 126 somatosensory evoked fields, 57 electromagnetic heating cryobiology, kidney preservation, 459 humidifier malignant melanoma electromagnetic heating condensate, bacterial contamination, 426 shape analysis, image analysis, computer cryobiology, kidney preservation, 397 ill-posed problems assisted diagnosis, 229 electronic aids heart wall motion, computer vision, timemass spectrometry gas exchange, anaesthesia, 147 control systems, integrated systems, varying imaging, 321 disability, 193 mechanical characteristics image analysis shape analysis, malignant melanoma, adapted access, adapted switches, disabled, energy cost keyboard, 117 paraplegia, gait, orthoses, 344 computer assisted diagnosis, 229 enterohepatic circulation image processing mechanical testing pharmacokinetics, compartmental model, medical image analysis, pattern recognition, soft tissue, liquid nitrogen, 440 521 287 medical image analysis entrainment American Sign Language, hand motion, adaptive clustering, 419 image processing, pattern recognition, 287 autonomic nervous system, skin capillary membrane oxygenator cardopulmonary bypass, self-tuning control, blood flow, local reflex response, barorecepin vitro testing oxygen regulation, 404 tor outflow, 307 spectral scanning, blood oxygen saturation, tissue hypoxia, co-oximeters, 168 membrane potential distribution fast algorithm discrete cosine transform, Fourier transform, in vivo measurements neurone simulation, association learning, laser Doppler, thrombus formation, neurone pattern association, 222 fetal heart rate pharmacology, 41 metastatic lesions fetal monitoring, labour, 431 bone, vertebra, strength, cancer, finite fetal monitoring LV systolic function, ventricular element analysis, 467 Doppler ultrasound, respiratory sinus interdependence, model study, 257 microcomputer aids for the disabled, clinical trials, robot, arrhythmia, 263 inflammation fetal heart rate, labour, 431 subcutaneous glucose sensor, biostability, workstation, 187 model optimization fetal placenta dogs, 33 insulin advisory therapy head movement, model simulation, sensitivity gas exchange, circulation, oxygenation, 385 finger tremor knowledge-based system, diabetes mellitus, analysis, theory of optimality, 451 EEG, tremor, 356 dynamic simulation, 243 model simulation head movement, model optimization, finite-element analysis insulin dosage adjustment bone, vertebra, strength, metastatic lesions, computer simulation, physiological model, sensitivity analysis, theory of optimality, 451 cancer, 467 type 1 diabetes mellitus, 235 model study LV systolic function, indices, ventricular finite-element method integrated systems control systems, disability, electronic aids, 193 interdependence, 257 bone, computed tomography, biomechanics, modelling 483 intervertebral disc finite-element method pressure, stress, transducer, spine, 495 bone adaptation, finite-element model, articular cartilage, biphasic analysis, osteoarintramedullary damage rate, 209 thritis, 217 total knee replacement, alignment, X-ray monolayer correlation factor, 363 finite-element model cardiac muscle, stimulation, cellular response, intramedullary prostheses bone adaptation, damage rate, modelling, 209 bone adaptation, bone damage, prosthesis motion analysis finite state control collar, 499 gait, anemometry, velocity, kinetic energy, paraplegic standing, knee joint, 3 joint coordinate systems 435 first trimester kinematics, hand motion, 133 multi-electrode array cervical compliance, cervical dilation, abordynamic dento-palatography, speech, joints tion, 527 biplanar radiography, biomechanics, shoulder, muscle, 490 orthognathic surgery, 163 foetal monitoring muscle keyboard near infra-red, spectroscopy, 303 biplanar radiography, biomechanics, Fourier transform adapted access, adapted switches, disabled, shoulder, joints, 490 musculo-skeletal system discrete cosine transform, fast algorithm, 507 mechanical characteristics, 117 gait kidney preservation bending moment, biomechanical modelling, paraplegia, orthoses, energy cost, 344 cryobiology, electromagnetic heating, 397 293 cryobiology, electromagnetic heating, 459 motion analysis, anemometry, velocity, kinemyocardium tic energy, 435 kinematic patterns left ventricle, stiffness, volume elasticity, 21 prosthetics, above-knee, control, 199 normal gait, automatic gait measurements, near infra-red gas exchange correspondence factor analysis, 313 spectroscopy, foetal monitoring, 303 mass spectrometry, anaesthesia, 147 kinematics neurone pattern association fetal placenta, circulation, exygenation, 385 joint coordinate systems, hand motion, 133 neurone simulation, association learning, gas transport kinetic energy memberane potential distribution, 222 gait, motion analysis, anemometry, velocity,

neurone simulation

association learning, neurone pattern

arterial system, ohmic resistance, 390

non-uniform circulatory model

association, membrane potential distribution,

high-frequency oscillation, direct wash-out,

biomechanics, universal joint, slippage, 509

kinematics, joint coordinate systems, 133

half-frame, fixator

hand motion

435

knee joint

knowledge-based system

finite state control, paraplegic standing, 3

nsulin advisory therapy, diabetes mellitus,

normal gait

kinematic patterns, automatic gait measurements, correspondence factor analysis, 313

ohmic resistanced

non-uniform circulatory model, arterial system, 390

optical measuring method

titanium implants, screws, surface roughness,

optical methods

platelet transfusion, quality control, platelet orthodontics

tooth movement, biomechanics, 3-D

measurement, 371

orthognathic surgery Dynamic Dento-palatography, multi-electrode array, speech, 163

orthoses

paraplegia, gait, energy cost, 344

articular cartilage, finite-element method, biphasic analysis, 217

oxygen regulation

cardopulmonary bypass, self-tuning control, membrane oxygenator, 404

oxygenation

gas exchange, fetal placenta, circulation, 385 paraplegia

gait, orthoses, energy cost, 344

paraplegic standing

finite state control, knee joint, 3 patella

pateller tracking, patello-femoral contact, 329 pateller tracking patella, patello-femoral contact, 329

patello-femoral contact

patella, pateller tracking, 329

pattern recognition

medical image analysis, image processing, 287 pharmacology

laser Doppler, thombus formation, in vivo measurements, 41

pharmokinetics

enterohepatic circulation, compartmental model, 521

physiological model

computer simulation, type 1 diabetes mellitus, insulin dosage adjustment, 235

plantar pressure

shear stresses, diabetic ulceration, 181 platelet count

platelet transfusion, quality control, optical methods, 27

platelet transfusion

quality control, optical methods, platelet count, 27

pneumatic ventricle

cardiovascular modelling, pressure-volume relationship, venous return curves, cardiac function curves, 91 pneumatics

air/oxygen blender, respiratory therapy, ventilator dependency, poppet-seat configuration, 153

poppet-seat configuration

air/oxygen blender, respiratory therapy pneumatics, ventilator dependency, 153 pressure

stress, transducer, spine, intervertebral disc, 495

pressure-volume relationship cardiovascular modelling, venous return curves, cardiac function curves, pneumatic ventricle, 91

prostheses

bone, artificial joints, holographic

interferometry, 126 prosthesis collar

intramedullary prostheses, bone adaptation, bone damage, 499

prosthetics gait, above-knee, control, 199 pulse wave velocity

aortic compliance, Doppler ultrasound, reproducibility, 250

pump flow rate blood flow, assist ventricle, 156

quality control

platelet transfusion, optical methods, platelet count, 27 radionuclides

reactive hyperaemia, analysis, 142

reactive hyperaemia radionuclides, analysis, 142

reproducibility

aortic compliance, Doppler ultrasound, pulse wave velocity, 250

respiratory distress syndrome

high frequency oscillation, tidal volume, 16 respiratory sinus arrhythmia

fetal monitoring, Doppler ultrasound, 263 respiratory therapy air/oxygen blender, pneumatics, ventilator

dependency, poppet-seat configuration, 153 robot

aids for the disabled, clinical trials, microcomputer, workstation, 187

sampling techniques

signal-to-noise ratio, correlation algorithm, 516

scoliosis

digitizer, video, 69

titanium implants, surface roughness, optical measuring method, 412

self-tuning control

cardopulmonary bypass, oxygen regulation, membrane oxygenator, 404

sensitivity analysis

head movement, model optimization, model simulation, theory of optimality, 451

shape analysis

malignant melanoma, image analysis, computer assisted diagnosis, 229

plantar pressure, diabetic ulceration, 181 shoulder

biplanar radiography, biomechanics, muscle, joints, 490 signal analysis

ECG analysis, wavelet transform, 268 signal-to-noise ratio

sampling techniques, correlation algorithm,

skin capillary blood flow

autonomic nervous system, local reflex response, baroreceptor outflow, entrainment,

slippage biomechanics, half-frame, fixator, universal joint, 509

mechanical testing, liquid nitrogen, 440 somatosensory evoked fields

magnetoencephalography, synchronized spontaneous activity, 57

spectral scanning blood oxygen saturation, in vitro testing, tissue hypoxia, co-oximeters, 168 spectroscopy near infra-red, foetal monitoring, 303

Dynamic Dento-palatography, multi-electrode

array, orthognathic surgery, 163 spine

pressure, stress, transducer, intervertebral disc,  $495\,$ 

stem fracture

computer image analysis, total hip replacement, 9

stem loosening

computer image analysis, total hip replacement, 379

stereophotogrammetry

close-range photogrammetry, 3-D motion analysis, 476

stimulation

cardiac muscle, monolayer, cellular response,

pressure, transducer, spine, intervertebral disc, 495

subcutaneous glucose sensor

biostability, inflammation, dogs, 33 surface roughness

titanium implants, screws, optical measuring method, 412

synchronized spontaneous activity magnetoencephalography, somatosensory

evoked fields, 57 theory of optimality

head movement, model optimization, model simulation, sensitivity analysis, 451

thrombus formation

laser Doppler, pharmacology, in vivo measurements, 41

tidal volume

high frequency oscillation, respiratory distress syndrome, 16

time-varying maging

heart wall motion, computer vision, ill-posed problems, 321

tissue hypoxia

spectral scanning, blood oxygen saturation, in vitro testing, co-oximeters, 168 titanium implants

screws, surface roughness, optical measuring method, 412

tooth movement

orthodontics, biomechanics, 3-D measurement, 371

total hip replacement

computer image analysis, stem fracture, 9 computer image analysis, stem loosening, 379 total knee replacement

alignment, intramedullary, X-ray correlation factor, 363

pressure, stress, spine intervertebral disc, 495

EEG, finger tremor, 356

type 1 diabetes mellitus computer simulation, physiological model, insulin dosage adjustment, 235

universal joint

biomechanics, half-frame, fixator, slippage, 509

valve leaflet

CAD system, blood-pump valve, dip moulding, 275

velocity

gait, motion analysis, anemometry, kinetic energy, 435 venous return curves

cardiovascular modelling, pressure-volume relationship, cardiac function curves,

pneumatic ventricle, 91

ventilator dependency air/oxygen blender, respiratory therapy, pneumatics, poppet-seat configuration, 153

ventricular interdependence LV systolic function, indices, model study, 257

digitizer, scoliosis, 69

volume elasticity

left ventricle, stiffness, myocardium, 21 walking aids

weight relief, ambulation, 351 wavelet transform

ECG analysis, signal analysis, 268 weight relief

walking aids, ambulation, 351 workstation aids for the disabled, clinical trials,

microcomputer, robot, 187 X-ray correlation factor total knee replacement, alignment,

intramedullary, 363